

# Optimizing Assemble using BIM 360

**Anthony IANDIORIO**

BIM-VDC Manager, Graitec Canada

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Technical Director BIM-VDC, Graitec Canada



# Welcome!

- This is a 60 minute industry talk.
- We want it interactive, so login to : **meet.ps/au**
- Please switch mobile devices to silent mode.
- Please save questions for the end and/or type them into **meet.ps**
- Don't forget to fill out our surveys.



## About the speakers

### Anthony IANDIORIO, eng.

- Works in BIM since 2016
- Services provided : Implementation, training, coaching, BIM project management.
- Worked on public buildings, transportation, private real estate development, etc...
- Now BIM Manager at Graitec Canada



## About the speakers

### Eric Bernier, Can BIM CP

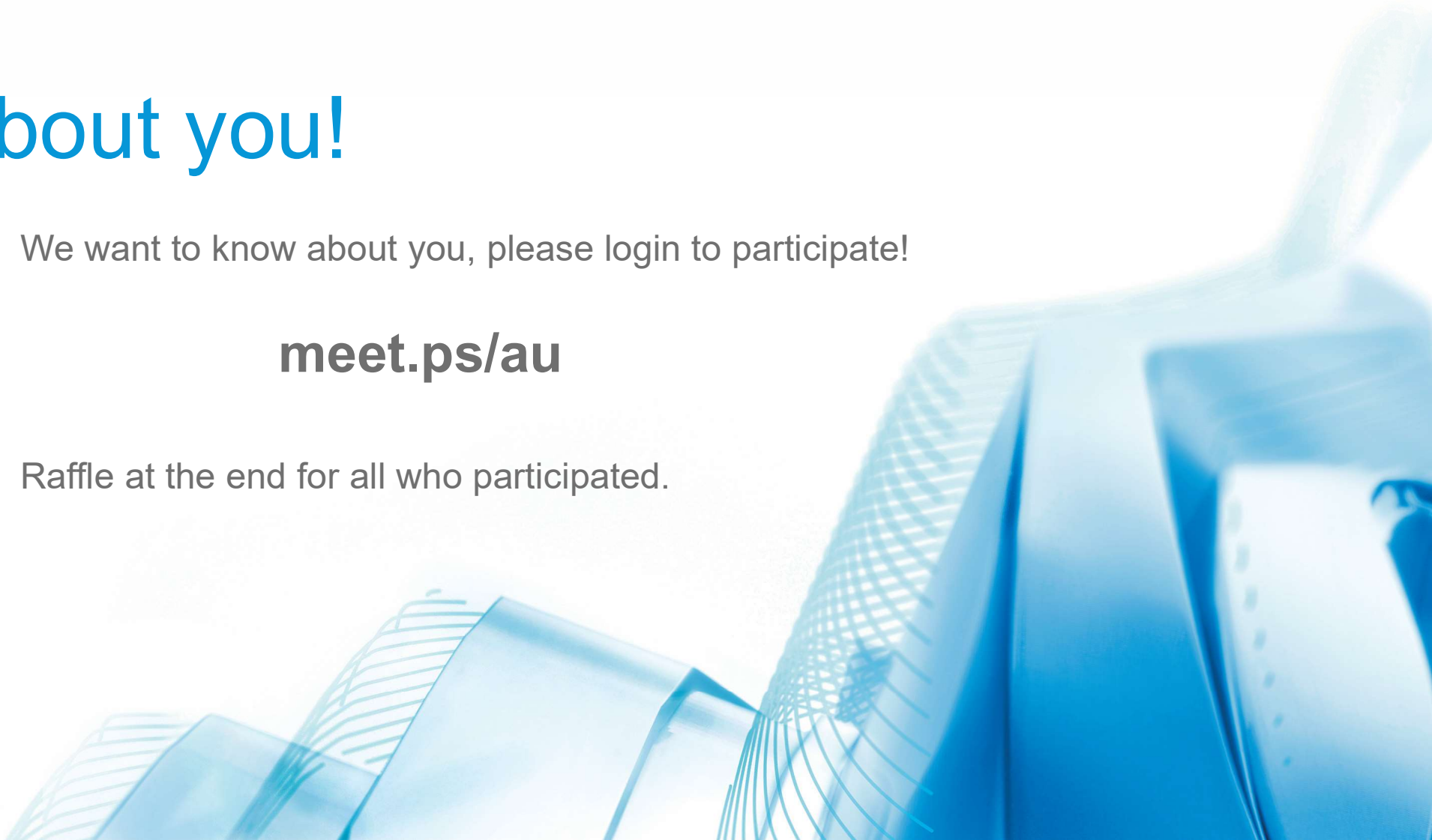
- Works with BIM tools since 2002
- Founded the Quebec BIM User Group in 2008
- Founded his own BIM consulting company in 2009 with 14 employees and 2 offices (Montreal and Quebec).
- Services provided : Implementation, training, coaching, BIM project management, BEP, change management.
- Worked on Universities, Hospitals, etc...
- International speaker (USA, Ireland, Canada)
- Now Technical Director at Graitec Canada

# About you!

We want to know about you, please login to participate!

**[meet.ps/au](https://meet.ps/au)**

Raffle at the end for all who participated.



## Course description

This class will cover the simplicity of setting up a project in Assemble and linking it to a BIM 360 account in order to preserve a single source of truth and maximize on the 3Cs in BIM. We'll also cover best practices and offer more tips and tricks that will enable a more fluid workflow.

## Level of the audience

<sup>1</sup>in·ter·me·di·ate  *adjective* \,in-tər-'mē-dē-ət\

: occurring in the middle of a process or series

: relating to or having the knowledge or skill of someone who is more advanced than a beginner but not yet an expert



## Objectives



LEARN HOW TO :

- **CREATE A NEW PROJECT IN ASSEMBLE**

Just to be sure that everyone is on the same page here. How to do it quickly and efficiently.

- **LINK A BIM 360 FILE TO ASSEMBLE**

Mysterious to many, but so simple. Here is how to do it.

- **REORGANIZE DATA PER BUDGET COST CODES**

This is where the magic begins!

- **COMPLETE A COST ESTIMATE ANALYSIS**

And finally, the results we were looking for.



# Introduction

Our main objective is to share our experience with Assemble for all AEC professionals and demonstrate the value that BIM360 adds to simplify your workflows

- First, what roles are affected by BIM?
  - Owner and/or Operator
  - Architect / Engineer
  - Estimator
  - Project Manager

# Introduction – Roles

## OWNER AND/OR OPERATOR

- Key to a project providing vision and capital
- Facilities become enterprise assets
- Operation and maintenance requires data

## ESTIMATOR

- Produce budgets at lightning speed
- Analyze constructability and conformance to client budgets.

## ARCHITECT / ENGINEER

- First in the project development phase
- Design per Owner's needs
- Design per regulatory codes and best practice
- Starting point for BIM

## PROJECT MANAGER

- Ensure that the project is executed according to:
  - Quality specifications
  - Master schedule
  - Established budget

# Introduction – Tying the Knot with BIM

We need information and we need it now: **hello Assemble!**

## OWNER AND/OR OPERATOR

- Holistic view of the digital twin throughout the whole project lifecycle
- Can leverage the data rich environment of a model without extensive training on modeling software such as Revit

## ARCHITECT / ENGINEER:

- Leveraging data rich models to extract quantities quickly for budget presentation
- Link to BIM360 Docs for technical review with design/build team (ie. Tech data sheets, shop drawings, etc...)

# Introduction – Tying the Knot with BIM

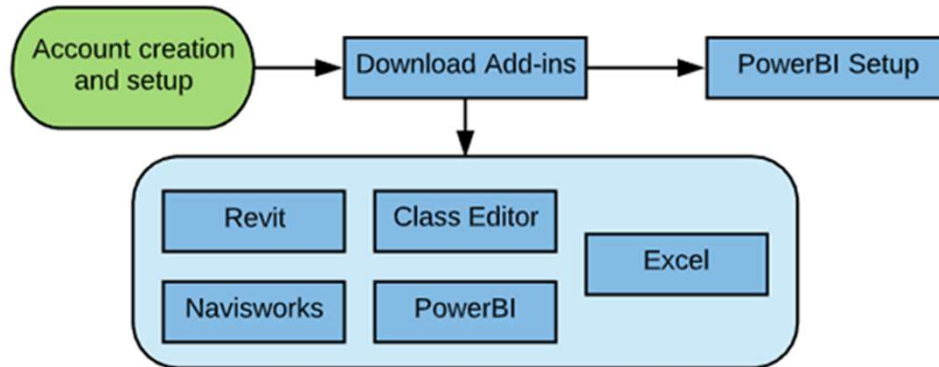
We need information and we need it now: **hello Assemble!**

- **CONTRACTORS (*SUBCONTRACTORS AND GENERAL CONTRACTORS*):**
  - Estimators:
    - ✓ Leveraging data rich models to extract quantities quickly for budget prep / analysis
    - ✓ Use of specialized add-ins such as Excel, Power BI and the desktop Class Editor offering greater flexibility for data presentation / analysis.
  - Project Managers:
    - ✓ Link to BIM360 Docs for technical review with design/build team
    - ✓ Create, track and manage Issues identified in Assemble model viewing



Let's dive in.....

# Create your Account / Login



- Very simple now that you could use your Autodesk ID
- Not an Autodesk user yet, just create a new account

**AVAILABLE NOW**

## ASSEMBLE + BIM 360

Access specifications and documents from BIM 360 directly in your Assemble model.

[LEARN MORE](#)

### Assemble Login

Email

Password

[Sign In](#)

[Forgot your password?](#)

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Got an Autodesk Account?

[Sign In with your Autodesk ID](#)

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# Download Add-ins

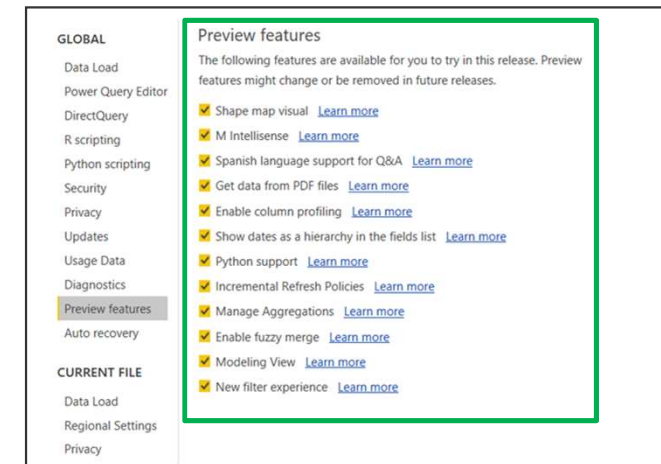
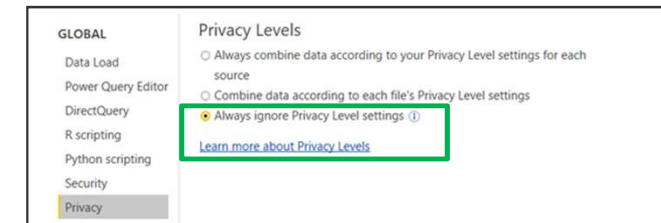
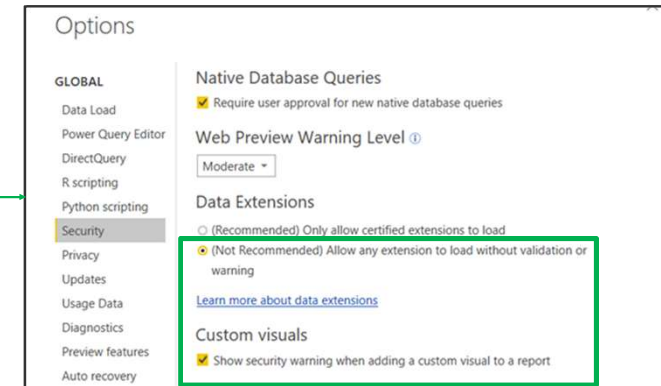
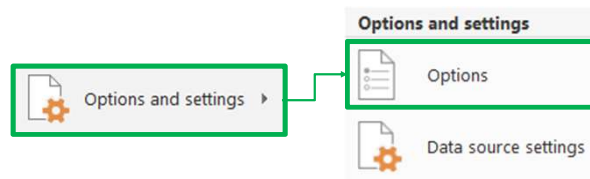
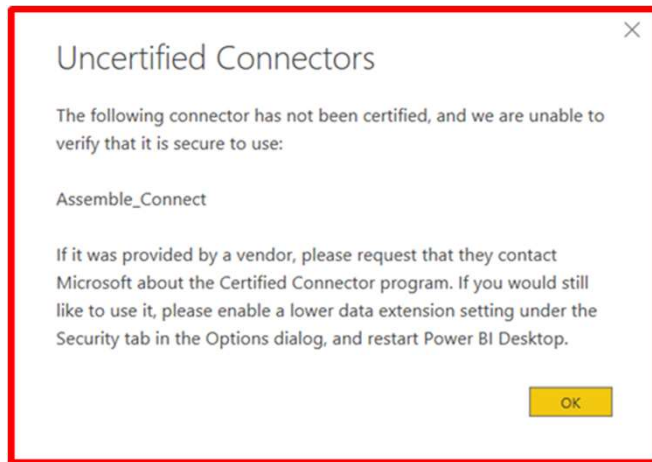
These are the ones we've tested and recommend:

- **Revit plug-in** is a priority for all
- **Class Editor**: Custom calculation
- **PowerBI**: Data viz
- **Excel**: Link your company templates to Assemble

The screenshot shows the Assemble Systems website header with the logo "assemble AN AUTODESK COMPANY" and navigation links: "WHO WE ARE", "WHAT WE DO", "WHO WE SERVE", "RESOURCES", "BLOG", and a "FREE TRIAL" button. A dropdown menu is open under "RESOURCES", listing: "Brochures", "Case Studies", "Customer Testimonials", "Downloads", "Events", "Support & Training", "Webinars", "Whitepapers / Workflows", "Videos", and "Customer FAQ". The main content area has a blue banner with the text "Moving Forward Together" and a sub-header "In addition to BIM solutions, Assemble Systems is committed to providing products and services that help you grow, improve and optimize outcomes for each and every project." Below this, a breadcrumb trail reads "All / Brochures / Case Studies / Downloads / Events / Support & Training / Webinars / White Papers - Workflows". A grid of six download links is displayed, each featuring the Assemble logo and a partner logo. The links are: 1. Assemble + N (Revit plug-in), 2. Assemble + RAC (Class Editor), 3. Assemble + sage (Sage integration), 4. Assemble + ORACLE PRIMAVERA (Class Editor), 5. Assemble + EXCEL (Excel Add-in), and 6. Assemble + POWER BI (Power BI Files). The first three links are in a red-bordered box, and the last three are in a red-bordered box.

 CLASS EDITOR (DOWNLOAD) Class Editor Download ...	 SCHEDULE INTEGRATOR ADD-IN (DOWNLOAD) Schedule Integrator Add-in ...	 EXCEL ADD-IN (DOWNLOAD) Excel Add-in ...
 POWER BI FILES (DOWNLOAD) Power BI Files Download ...		

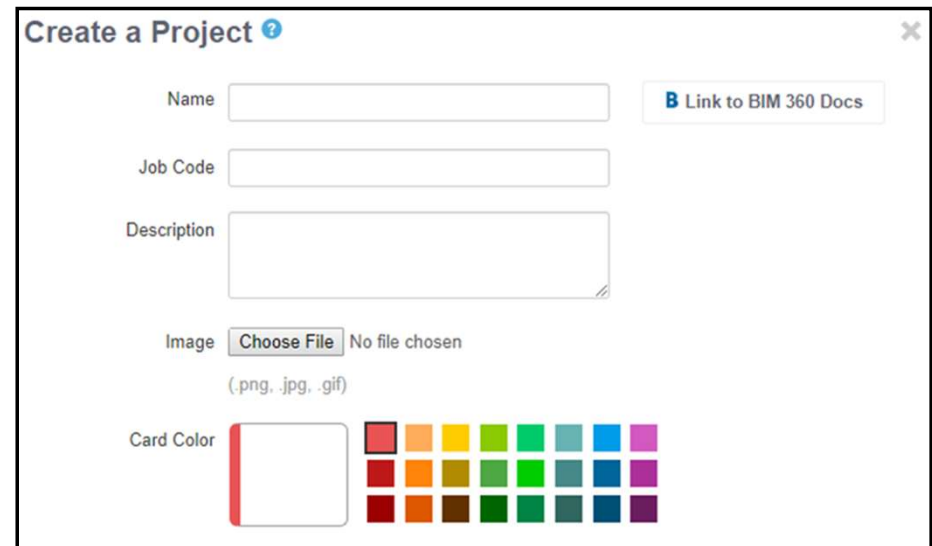
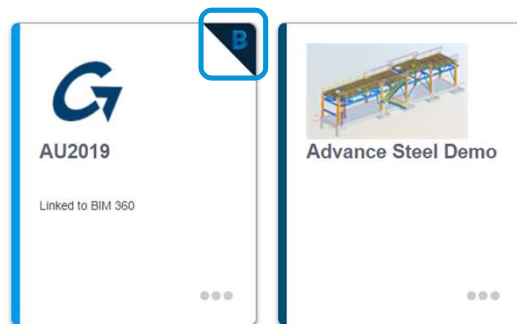
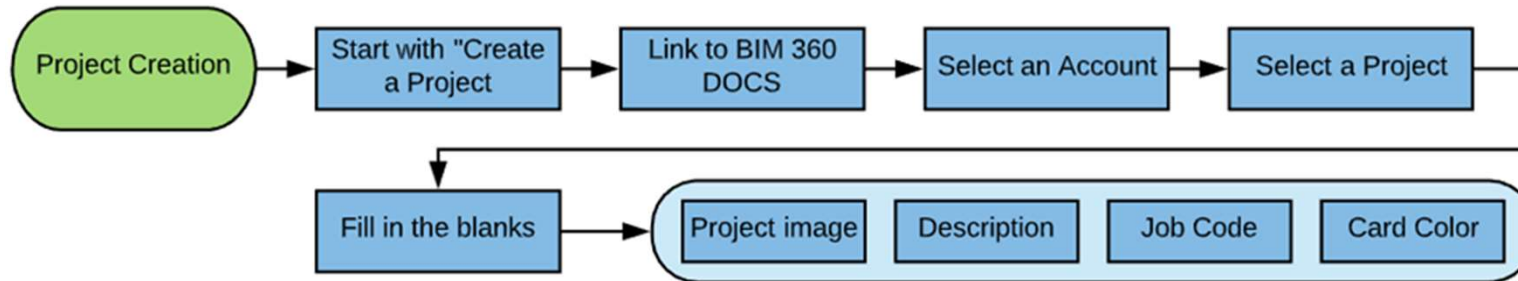
# Important notes for PowerBI



- Adjust your PowerBI security settings before opening the .pbix
- Save PowerBI templates to **PC > Documents > Microsoft Power BI Desktop**



# Create your Account / Login



The 'Create a Project' form includes the following fields and options:

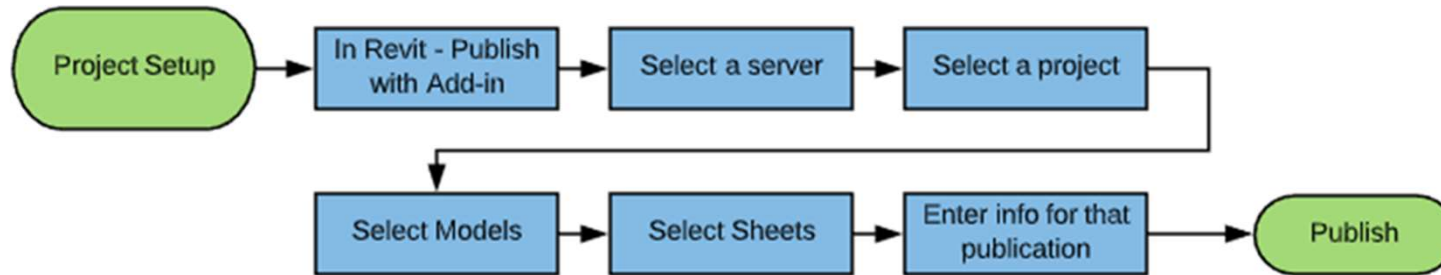
- Name:** A text input field.
- Job Code:** A text input field.
- Description:** A large text area.
- Image:** A 'Choose File' button and the text 'No file chosen'.
- Card Color:** A color selection interface with a vertical bar and a 4x8 grid of color swatches.

A 'Link to BIM 360 Docs' button is located in the top right corner of the form.

Very simple now that you could use your Autodesk ID

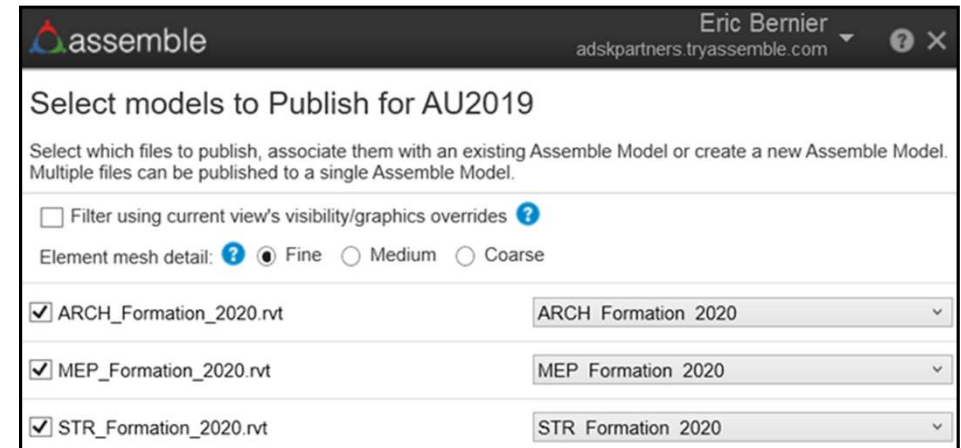
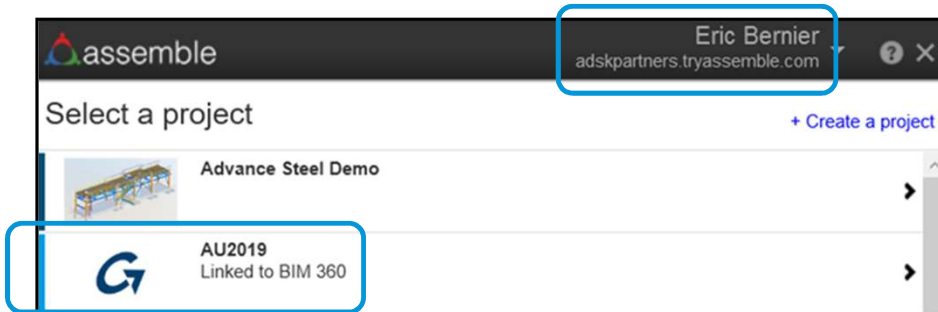
- Use the **Link to a BIM 360 Project** button
- Make changes to your project using the **Edit Project**

# Project setup and loading Revit files

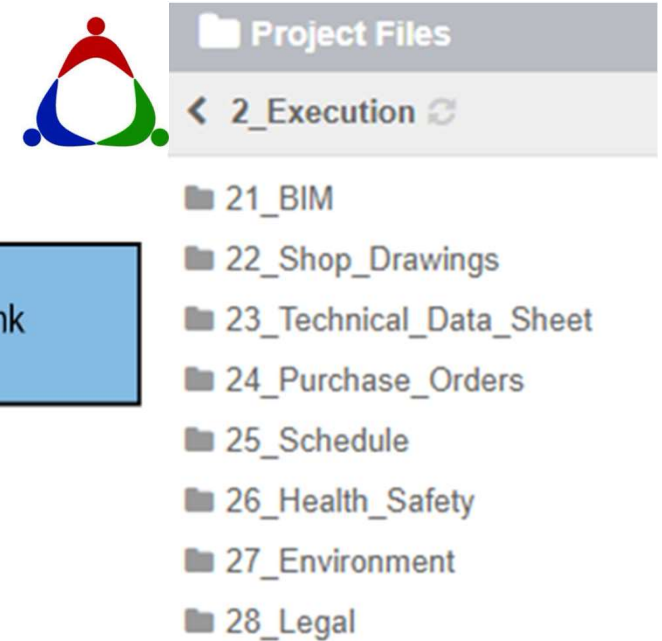
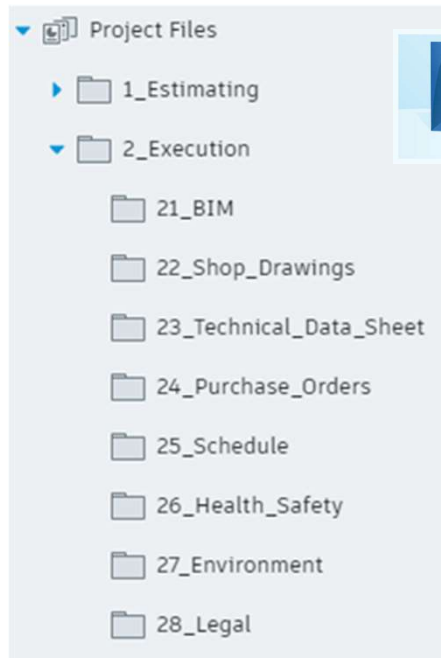


- Use Revit plug-in to publish a model
- Enter a valid domain: [adskpartners.tryassemble.com](https://adskpartners.tryassemble.com)
- Files with links will be detached in Assemble and may take a while

# Project setup and loading Revit files



- ☐ Publish sheets from the Revit sheet set:
- Toutes les feuilles + 3d
- [Help with Revit Sheet Sets](#)
- ☒ Publish all sheets in the current Revit project
- ☐ Do not publish sheets. Only publish 3D and model data.

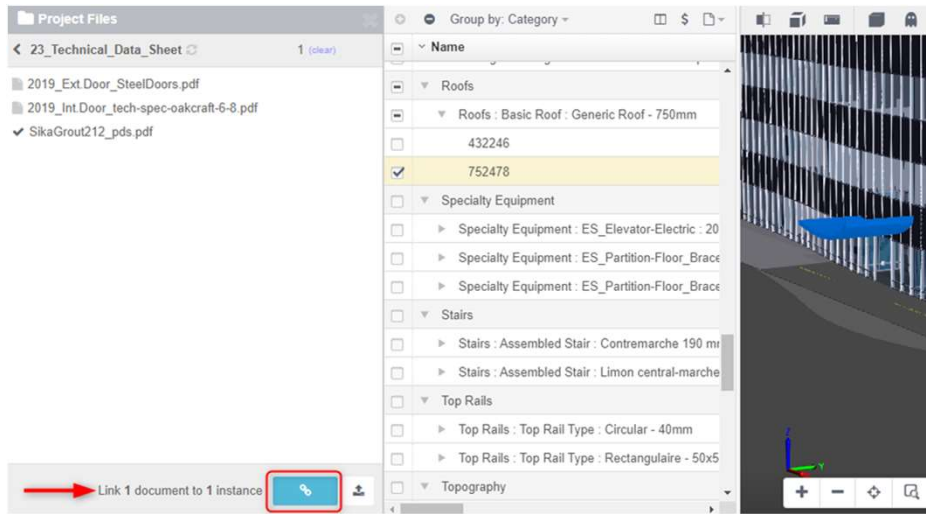


## BIM360 DOCS

Here you will have created a folder structure that meets your company's workflow for document management.

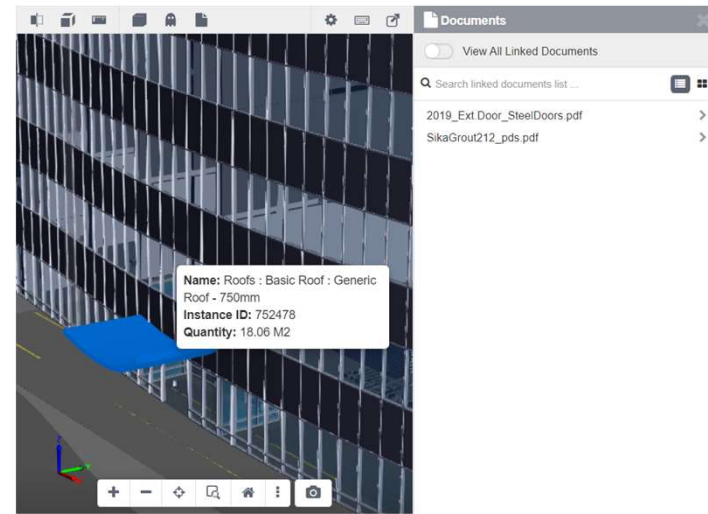
## BIM360 in Assemble

The exact folder structure and related documents from your BIM360 account are accessible through the Assemble cloud.



## Before

Select object > Navigate Project Files >  
Link button

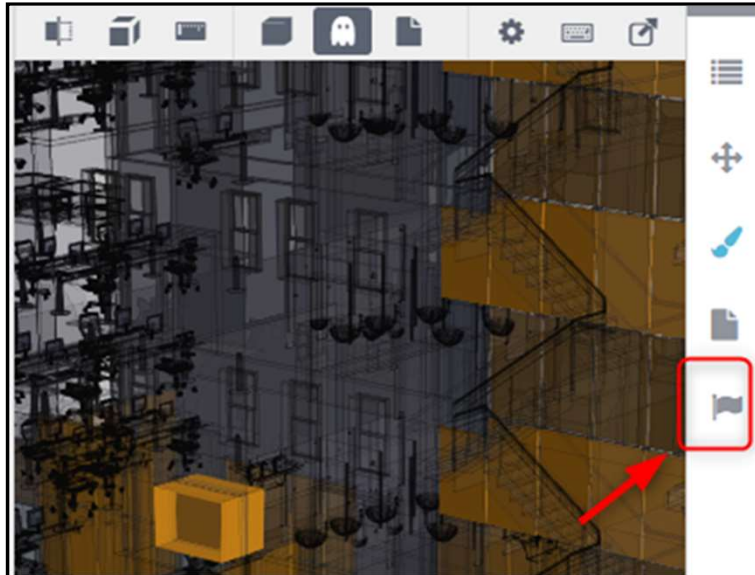


## After

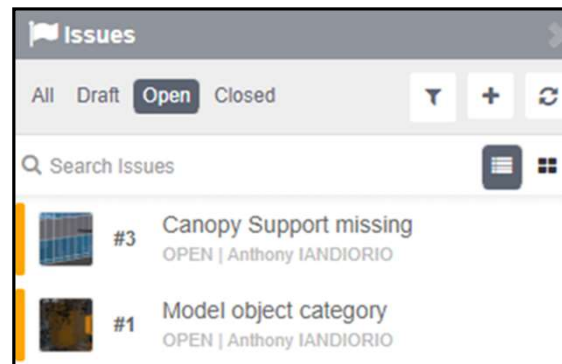
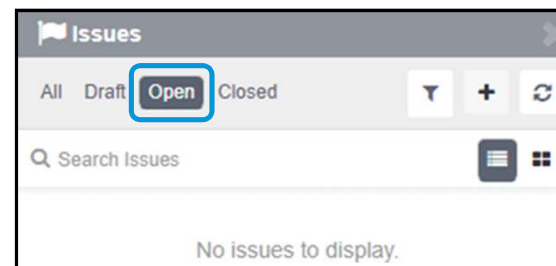
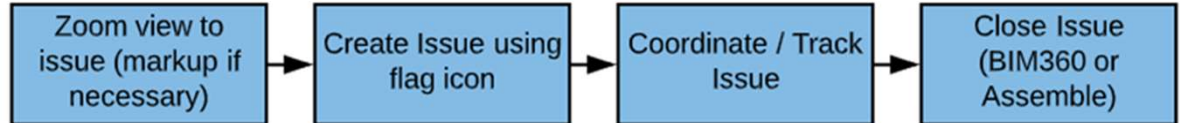
The file is saved in the documents property of  
Assemble



# Create and manage Issues



- Zoom to the **Issue**
- Select the **flag icon** in the right ribbon
- **Create and track the Issue** directly in the Assemble cloud or navigate a BIM360 account to see all Issues on the project



**Issues**

### Create Issue

**Subject**

Enter Subject

**Description**

Enter Description...

**Status**

Open

**Assigned To**

Assign to...

**Attachments**

Camera icon

# Document Management

FOLDERS

REVIEWS

TRANSMITTALS

ISSUES



Status	ID ▾	Type	Sub-type	Title	Location	Assigned to
Open	3	Design	Design	Canopy Support missing	-	Anthony IANDIORIO
Open	2	Design	Design	Wall connection problem	-	Eric Bernier
Open	1	Design	Design	Model object category	-	Anthony IANDIORIO



Keep calm, it's all there in  
**BIM360**





## Quick Cost Codes



# Step 1: Organizing Data per Cost Codes



- It is possible to select multiple models in a view (ie. Arch + MEP).
- Here's a common example for Division 03 and 09.

AU2019

Search by name press enter to select

MODELS

ARCH_Formation_2020	...
<b>ARCH_Formation_2020_detached</b>	3942 objects 2019-11-01
MEP_Formation_2020	4546 objects 2019-11-01
<b>STR_Formation_2020</b>	603 objects 2019-11-01

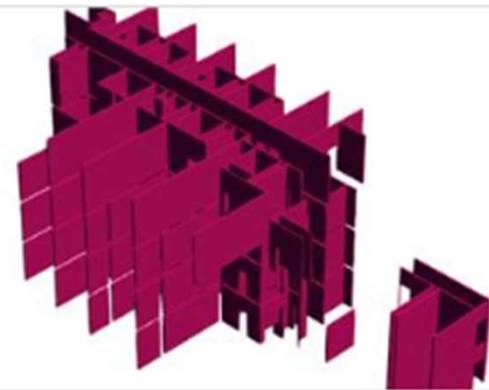
**Save View** [X]

033000 - Concrete Supply

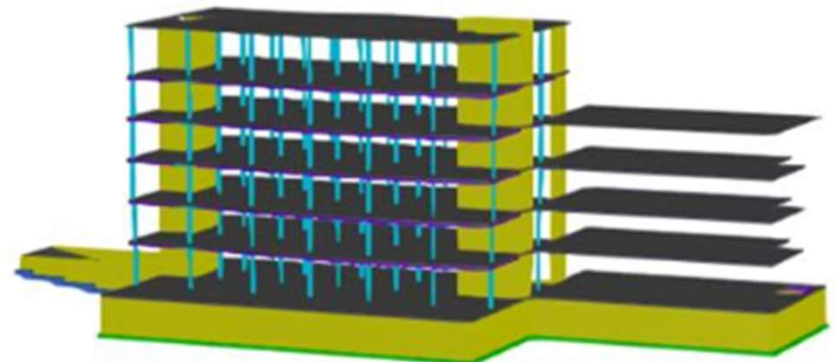
Cancel Done

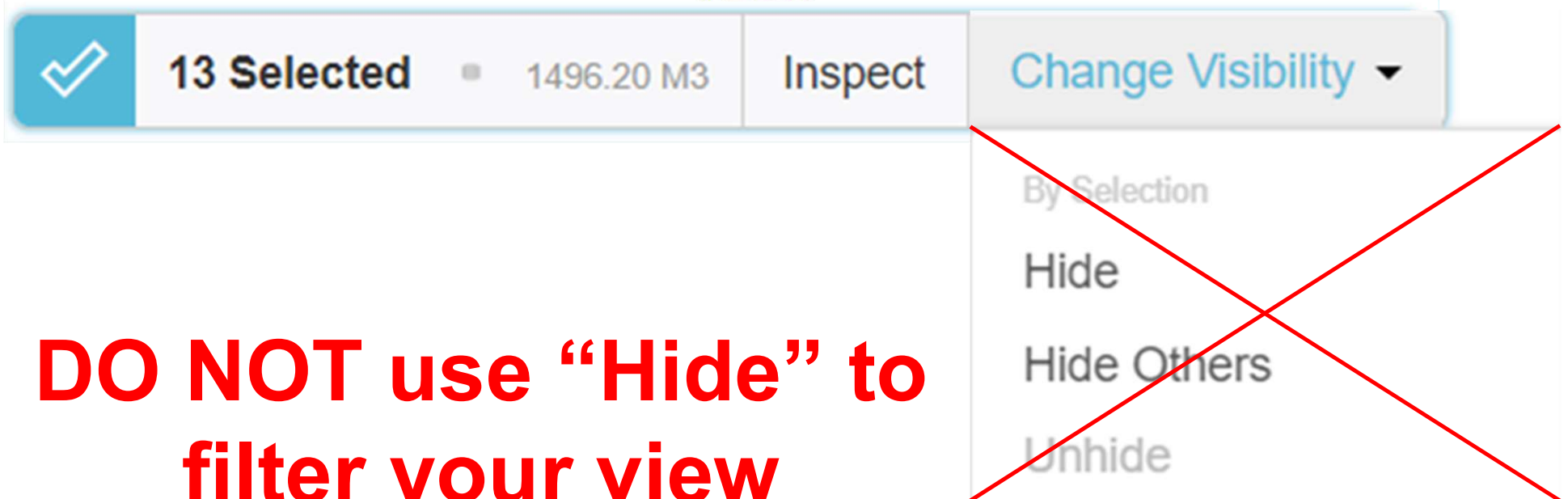
Untitled View [Save Icon]

090000 - Drywall



033000 - Concrete supply





**DO NOT use “Hide” to  
filter your view**

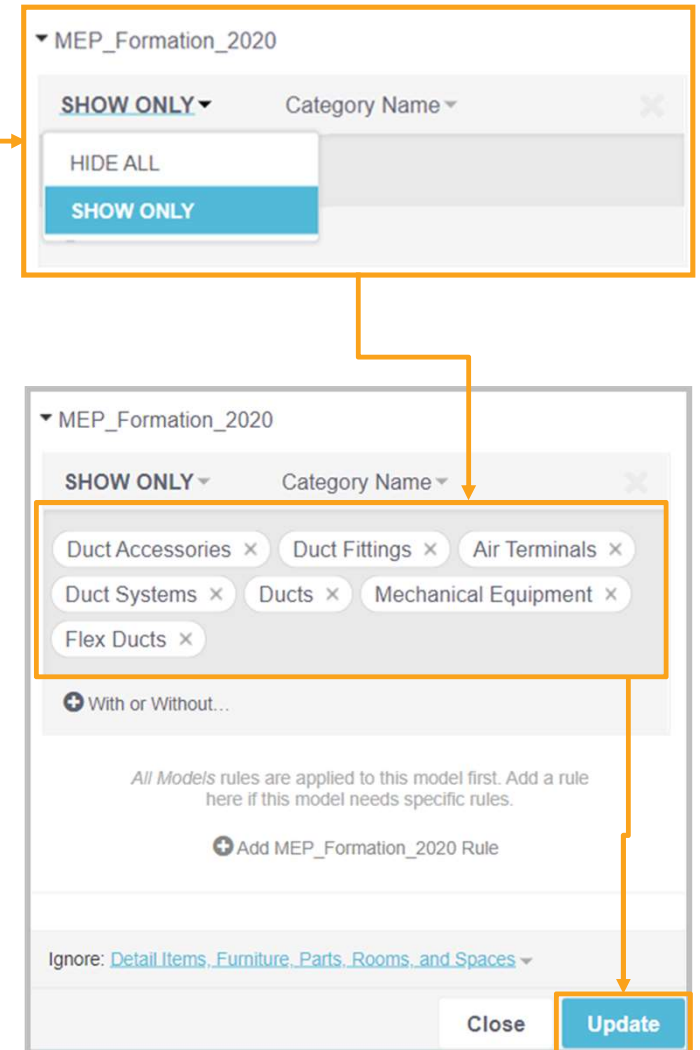
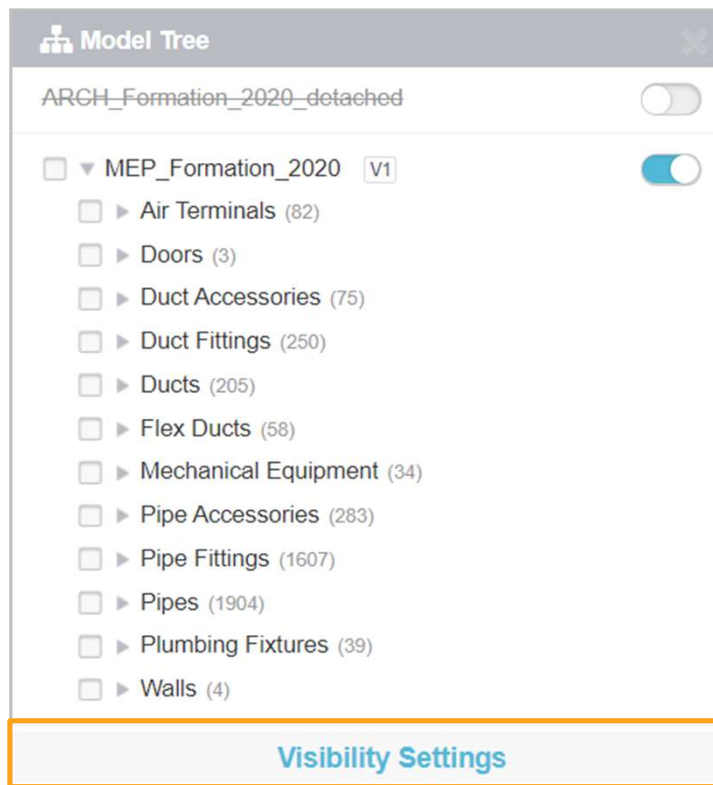
**Not recommended** as this causes a static view that could not be changed

# Intelligent Data sets



A few tips before starting:

- Visibility Settings allows for better flexibility when filtering data

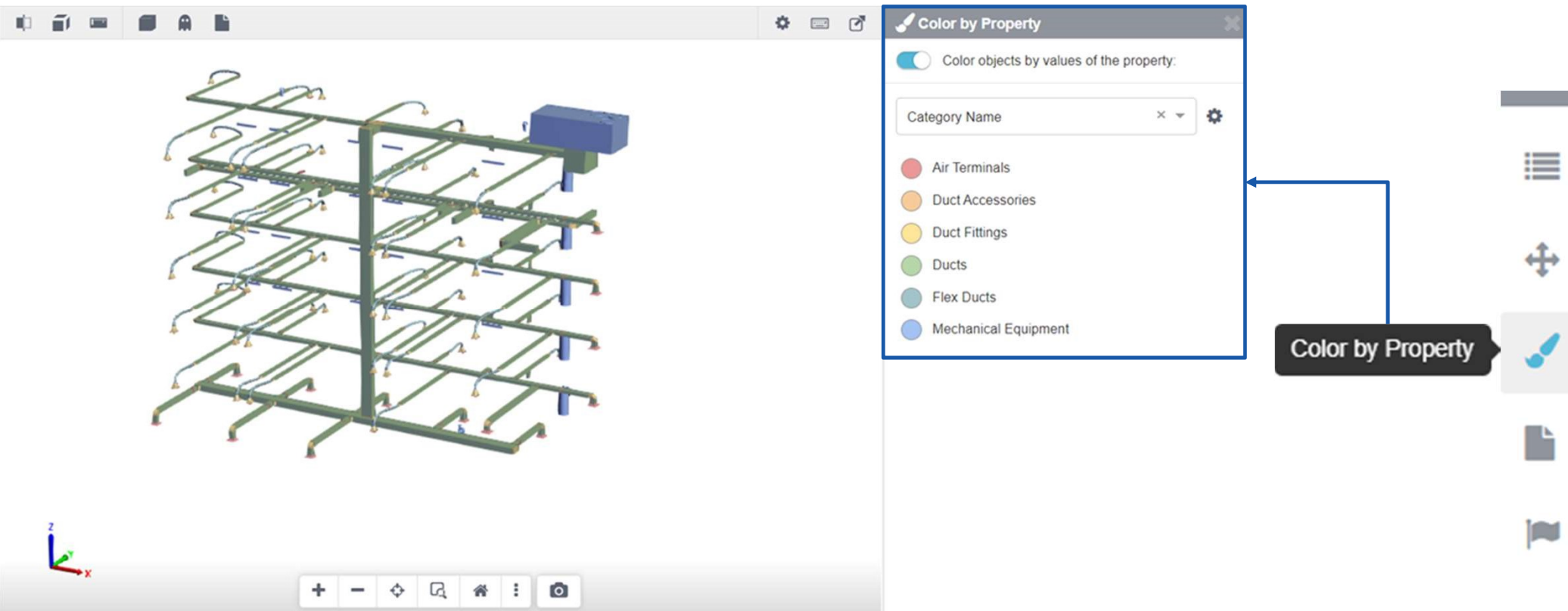


# Intelligent Data sets



Tip:

- Using the color by property further improves data visibility





Dilbert.com DilbertCartoonist@gmail.com



12-7-09 ©2009 Scott Adams, Inc./Dist. by UFS, Inc.



## Cost Estimate Analysis

# Assemble Class Editor



A few tips before starting:

- Make sure you use a valid URL.
- Know your **end result**.
- Create additional properties in Assemble if they don't already exist.

Open Assemble

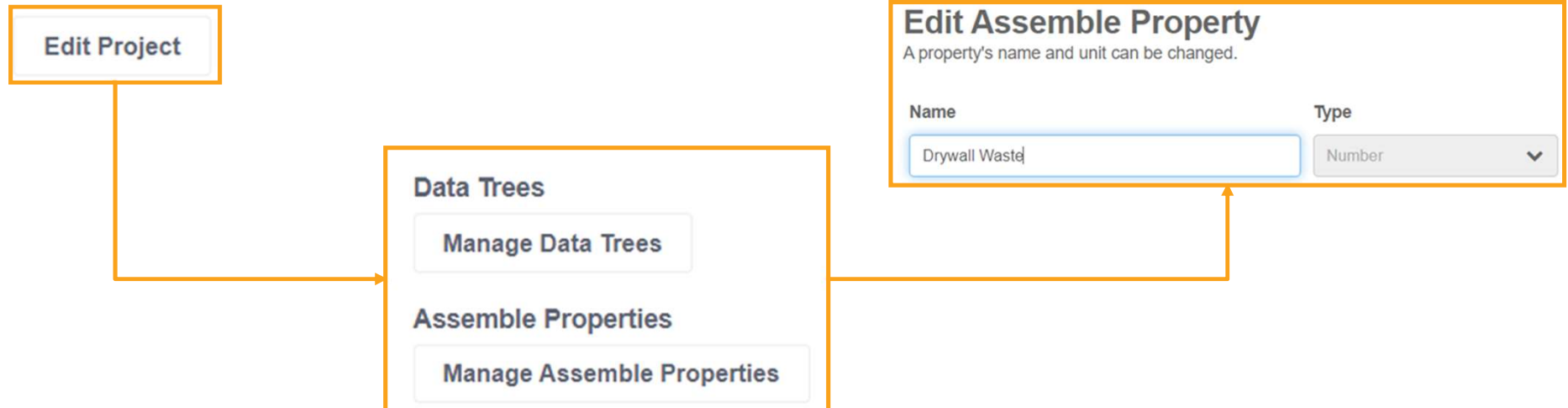
Assemble URL:

Username:

Password:

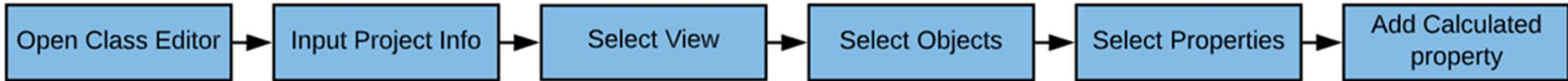
Project:

View:




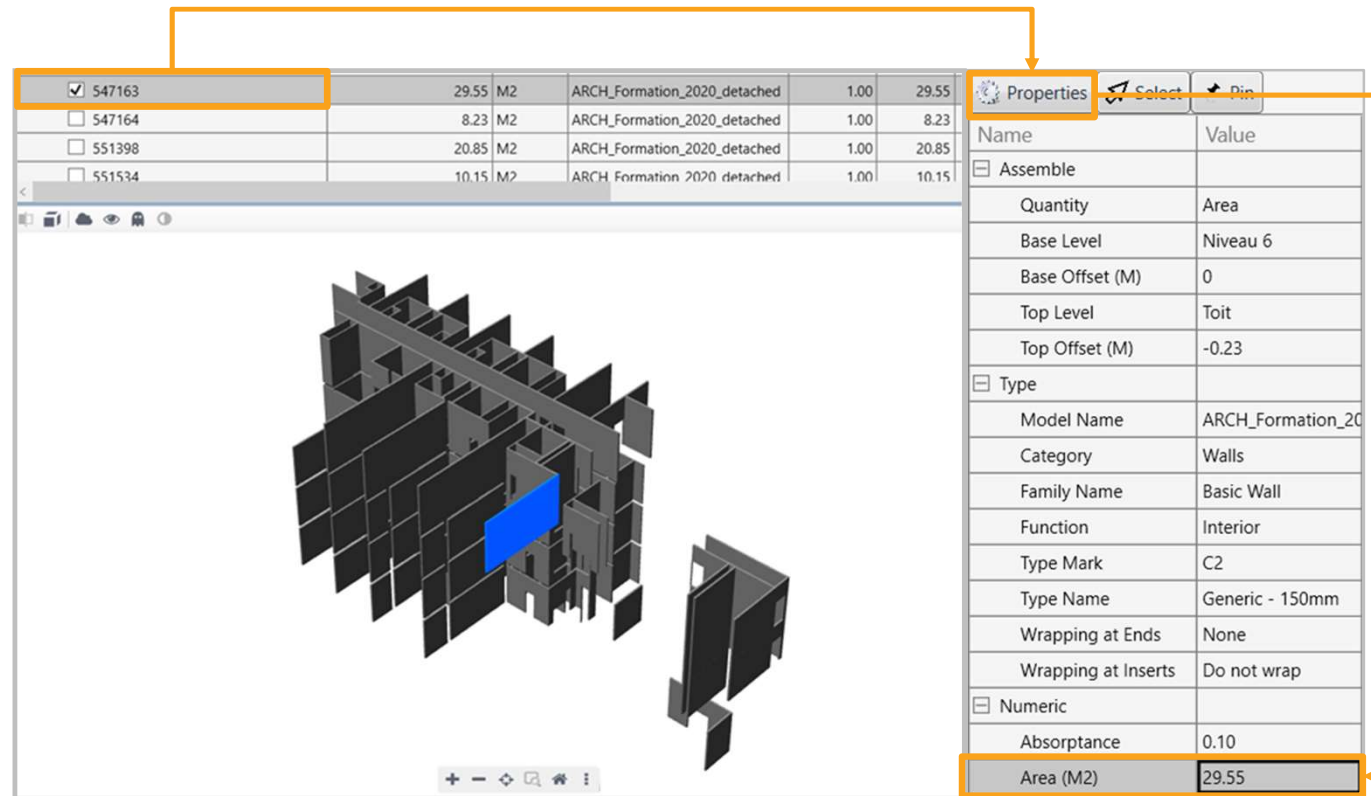
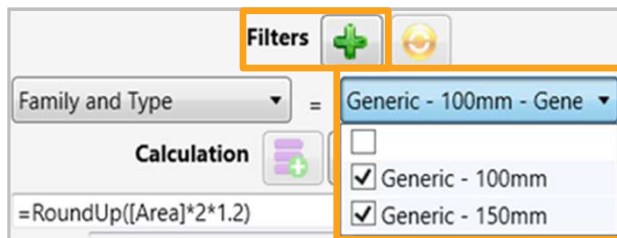


# Working in the Class Editor



A few tips before starting:

- Start with a specific object in the model
- Create a Calculated Property 
- Apply the Calculated Property to other objects using a Filter



# Back to Assemble



Once calculations are applied to all objects the changes will appear in the Assemble cloud

Group by: Category

Columns

\$ Estimate

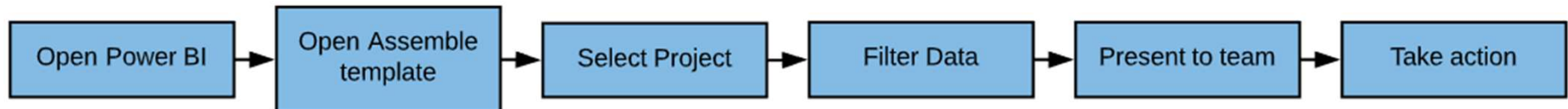
Import/Export

	Name	Quantity	Unit	Drywall Waste
	Walls	3,578.87	M2	
	Walls : Basic Wall : Generic - 100mm	1,134.76	M2	2,802.00
	Walls : Basic Wall : Generic - 150mm	2,444.11	M2	5,959.00

3D visualization of a building structure, showing walls and drywall waste. The walls are colored blue and green, and the drywall waste is highlighted in green. A 3D coordinate system (x, y, z) is visible at the bottom left of the model.



# Awesome Visualization with Power BI



☐ (Select All)

☐ Advance Steel Demo

☒ AU2019

Project Design and Estimating

Version ASM\_VERTOKEN| Template for project design and estimating.

Site Sub-Domain ⓘ

adskpartners

Project Name ⓘ

Load Cancel

Load

Edit

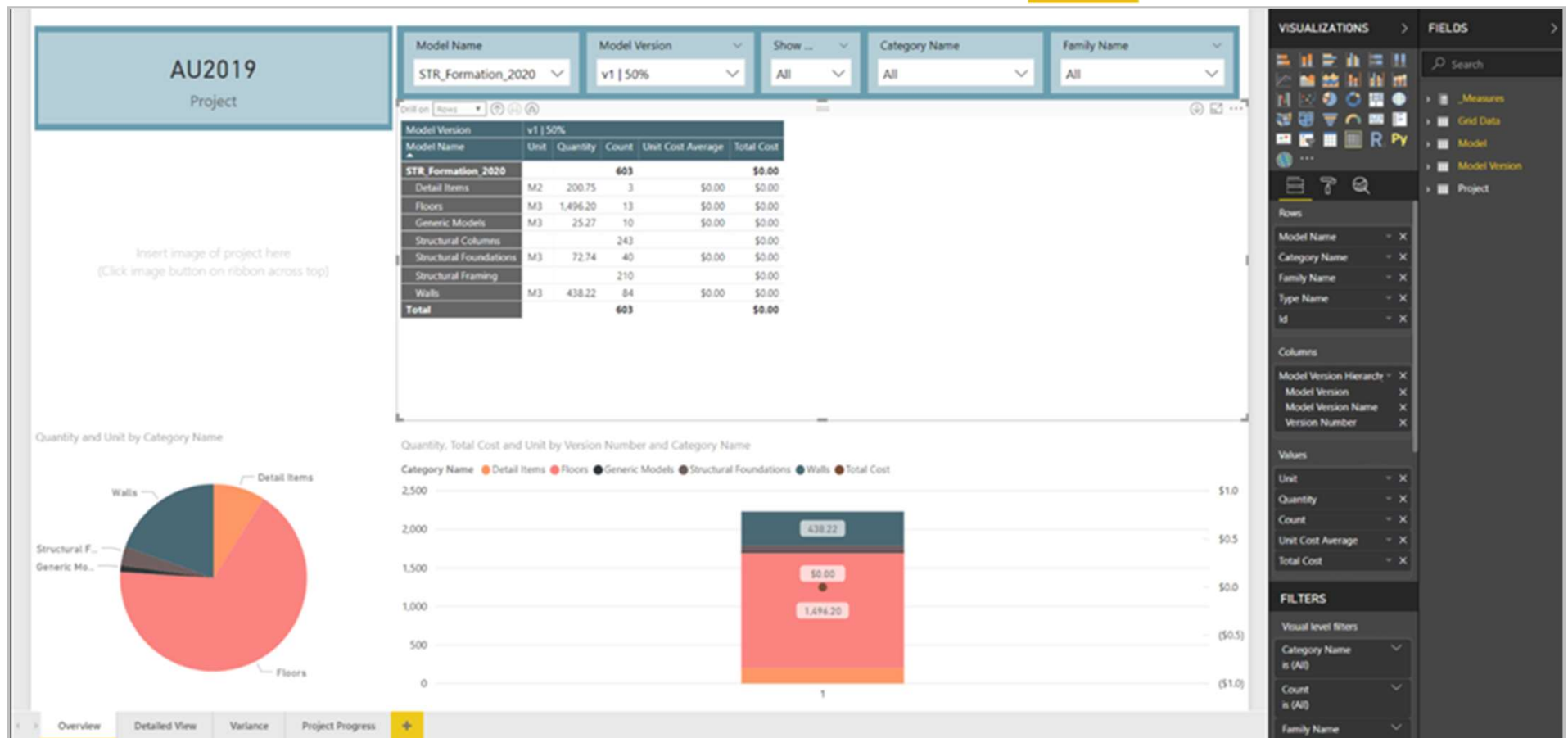
Queries [11]

- Site Sub-Domain (adskpa...
- Project Name (...)
- \_Measures
- Project
- Model
- Model Version
- Grid Data
- Selected Project

	ABC Id	ABC Project Name
1	25	AU2019

= Table.SelectRows(#"Filtered Rows by Pr

# Awesome Visualization with Power BI

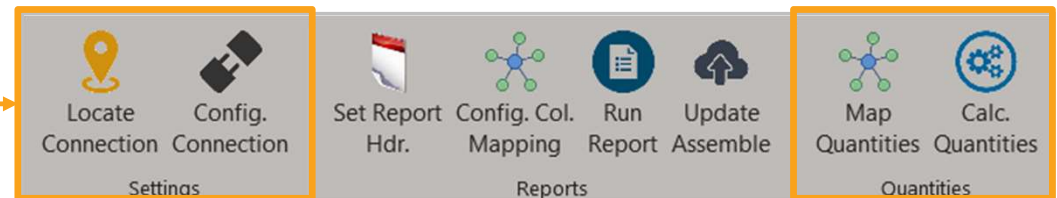


# Link to Existing Excel File



## Tips:

- Have an existing Excel template? Keep using!
- Make sure the Assemble connection is to the right model (ie. ARCH vs. STR vs. MEP)



# Link to Existing Excel File



Assemble Report Connection

URL:

User Name:

Password:

Project

☒ View ☐ Model

Version

Assemble Report Connection

URL:

User Name:

Password:

Project

☐ View ☒ Model

Version

# Link to Existing Excel File



Map Quantity

Quantity Property:  
Count

Filter Property:  
Family Name

Filter Values:  
M\_Cuvette réservoir-3D  
M\_Pompe - A fixation par base plane  
M\_Réduction - PVC - Nom. 40 - DWV  
M\_Robinet à tournant - PVC - Nom. 40 - C  
M\_Roof Drain  
M\_Rooftop AC Units - Gas Fired - 97-176  
M\_Té - Soudé - Générique  
M\_Transformation - Soudé - Générique  
**M\_Tub-Rectangular-3D**  
M\_Urinoir - Mural  
M\_Vanne d'isolement - 10-40 mm  
M\_WC - A réservoir mural  
Pipe Types  
Rectangular Duct  
Rectangular Elbow Eccentric Radius - D  
Rectangular Endcap

Add

Filters

Property Name	Property Value
Family Name	M_Tub-Rectangular-3D

Delete Selected

Cancel Save

[Link to Existing Excel File](#)



<b>AU2019</b>			
Projet 19001			
<b>220000 - Plumbing Direct Costs</b>			
Div.		Qty	Unit Unit Price
<b>22 00 00 - PLUMBING</b>			
22.01	Plumbing		<i>sous-total</i>
	Plumbing piping		l.m. 20.00 \$
	Drain piping		l.m. 15.00 \$
	Hot water tanks		units 300.00 \$
	Toilette bowls		units 300.00 \$
	Urinals		
	Bath tubs		

**{"QuantityPropertyId":"Count","Filters":**  
**[{"FilterPropertyId"**  
**:"FamilyName","FilterValues":["M\_Tub-**

## Link to Existing Excel File



<b>AU2019</b>						
Projet 19001						
<b>220000 - Plumbing Direct Costs</b>						
Div.		Qty	Unit	Unit Price	Total	Sub-Total
<b>22 00 00 - PLUMBING</b>						<b>40,460.73 \$</b>
<b>22.01</b>	<b>Plumbing</b>			<i>sous-total</i>		<b>40,460.73 \$</b>
	Plumbing piping	1,588	l.m.	20.00 \$	31,764.96 \$	
	Drain piping	580	l.m.	15.00 \$	8,695.76 \$	
	Hot water tanks	5	units	300.00 \$	1,500.00 \$	
	Toilette bowls	3	units	300.00 \$	900.00 \$	
	Urinals	3	units	300.00 \$	900.00 \$	
	Bath tubs	11	units	300.00 \$	3,300.00 \$	

<b>AU2019</b>						
Projet 19001						
<b>030000 - Concrete Direct Costs</b>						
Div.		Qty	Unit	Unit Price	Total	Sub-Total
<b>03 00 00 - CONCRETE</b>						<b>3,208,960.51 \$</b>
<b>3.01</b>	<b>Structural Framing</b>			<i>sous-total</i>		<b>3,208,960.51 \$</b>
	Concrete footings volume	73	m3	200.00 \$	14,548.42 \$	
	Concrete walls volume	438	m3	200.00 \$	87,644.45 \$	
	Concrete columns volume	132	m3	200.00 \$	26,428.78 \$	
	Concrete slabs volume	1,496	m3	200.00 \$	299,239.75 \$	
	Approximate total Rebar	1,391	MT	1,500.00 \$	2,085,824.33 \$	
	Approximate Rebar labor	1,391	MT	500.00 \$	695,274.78 \$	

# Update Assemble from Excel



## Tips:

- Make sure all columns are **Set to Header**
- Make sure the Assemble connection is to the right model (ie. ARCH vs. STR vs. MEP)

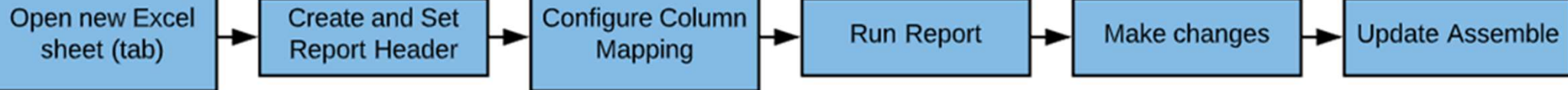


Category Name	Level	Quantity	Unit Cost	Sub-Total	Zone/Area
Windows_FE_Fixed	Niveau 2	1	0	0	
Windows_FE_Guillotine	Niveau 2	1	0	0	
Windows_FE_Imposte	Niveau 1	1	0	0	

Group by: Category									
Name	Quantity	Unit	Model Name	Count (EA)	Height (M)	Thickness (M)	Unit Cost	Total Cost	Zone/Area
Windows	108	EA	ARCH_Format...	108			0.00	0.00	
▶ Windows : FE_Fixed : 0610 x 1880mm	55	EA	ARCH_Format...	55	103.40		0.00	0.00	
▶ Windows : FE_Guillotine : 760 x 1565 mm	45	EA	ARCH_Format...	45	70.42		0.00	0.00	
▶ Windows : FE_Imposte : 1830 x 0610 mm	8	EA	ARCH_Format...	8	4.88		0.00	0.00	



# Update Assemble from Excel



## Tips:

- Unit costs and new Zone/Area data is automatically synced to the Assemble model



Category Name	Level	Quantity	Unit Cost	Sub-Total	Zone/Area
Windows_FE_Fixed	Niveau 2	1	200	200	Hotel
Windows_FE_Guillotine	Niveau 2	1	200	200	Office
Windows_FE_Imposte	Niveau 1	1	300	300	Hotel

Group by: Category ▾										Columns		\$ Estimate	Import/Export ▾
<input type="checkbox"/> Name	Quantity	Unit	Model Name	Count (EA)	Height (M)	Thickness (M)	Unit Cost	Total Cost	Zone/Area				
<input type="checkbox"/> Windows	108	EA	ARCH_Format...	108				22,400.00					
<input type="checkbox"/> ▶ Windows : FE_Fixed : 0610 x 1880mm	55	EA	ARCH_Format...	55	103.40		200.00	11,000.00	Hotel				
<input type="checkbox"/> ▶ Windows : FE_Guillotine : 760 x 1565 mm	45	EA	ARCH_Format...	45	70.42		200.00	9,000.00	Office				
<input type="checkbox"/> ▶ Windows : FE_Imposte : 1830 x 0610 mm	8	EA	ARCH_Format...	8	4.88		300.00	2,400.00	Hotel				

# Recap

WE LEARNED HOW TO :

- CREATE A NEW PROJECT IN ASSEMBLE

It's easy with your Autodesk credentials



- LINK A BIM 360 FILE TO ASSEMBLE

Have better control for technical review.



- REORGANIZE DATA PER BUDGET COST CODES

Separate the model objects in easy to digest views



- COMPLETE A COST ESTIMATE ANALYSIS

Use Class Editor, Power BI and the Excel add-ins to gain flexibility in budget analysis and presentation



## Q & A

- RAISE YOUR HAND
- USE THE APP

**[meet.ps/au](https://meet.ps/au)**



# RAFFLE

Please login to participate! **meet.ps/au**



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